In the Drawings:

Please amend the drawings as shown in the attached marked up copy thereof and in the enclosed Replacement Sheets thereof. For Figure 1 on the first sheet of drawings, and for Figures 2 and 3 on the second sheet of drawings, there have been added respective Tables that identify all of the components that have reference letters and numbers on the circuit diagram, with identifying text for two components actually placed on the circuit diagrams of Figures 2 and 3.

REMARKS

With the present amendment, claims 1, 2, and 4 to 7 are pending. Claims 1, 2, 4 and 5 and 5 stand rejected. Applicants are grateful to the Examiner for indicating that claim 6 contains subject matter that defines over the prior art. The drawings have been amended in response to the objections thereto, and hopefully are acceptable to the Office; placing the identifying text in reference tables does not disrupt the nature of the circuit diagrams which comprise the three Figures. Claims 1, 2, 4, and 7 are amended to obviate the objections to the claims for informalities or for being indefinite. The Specification and Abstract have been amended in accordance with these amendments to the claims, to which the Examiner has objected, and the amendments are not believed to constitute new matter, since they are clearly understandable to the artisan of routine skill in the art.

Claims 1, 2, 4 and 7 stand rejected under 35 USC §103(a) as being unpatentable over Duffy (US Patent No. 5,737,160) in view of Merrill (US Patent No. 5,969,514). Reference Duffy discloses a switch arrangement with two mechanical switches 4, 6 and a PTC device 2, so arranged to interrupt a current and voltage higher than the rated currents and voltages of each of the switches and the PTC device. At Column 1, lines 42 to 54, the reference states that it is addressing arcing between the contacts as they separate, even under normal operating conditions, and current (in the form of an arc) continues to flow through the switch until the arc is extinguished, with the contacts being damaged.

The Examiner concedes that reference Duffy does not disclose a monitoring unit set up to supply a disconnect signal to the semiconductor switch when there are changes in voltage or current beyond [pre-defined] tolerances. Further, the reference does not disclose semiconductor switches at all, only mechanical switches that cannot permit adjusting the amount of current, as can the present claimed invention.

Reference Duffy does not disclose a ballast resistor but instead a PTC-resistor, which is known to provide increased resistance in response to increased temperature, and has a positive temperature coefficient, where the current heats up the device. This is contrary to the presently claimed invention, which utilizes a ballast resistor RA1 which in combination with the series transistor H1A serves for power dissipation. The Examiner asserts that in Duffy, that " . . . a PTC (2), is connected in parallel to the semiconductor

switch (6) and in ...". This is not understandable, however, since a PTC-resistor is unrelated to a transistor. With the presently claimed invention, the current is maintained for some time, e.g. 50 -- 100 ms, in a limiting state in case of an overload condition; so it is necessary to protect the main semiconductor switch, for if one opens the switch immediately in case of overload, no further heat dissipation in the semiconductor switch can occur. The reference does not disclose, starting from a power supply in an overload condition, a circuit that absorbs a substantial portion of the overload current in a branch containing a semiconductor switch by means of an auxiliary semiconductor switch, as in the presently claimed invention.

Reference Merrill discloses a digital feedback power supply circuit capable of adjusting the flow of power to a load, the circuit including a switching array having a plurality of switches. A monitoring circuit measures the output voltage level and sends it as a feedback signal, whereafter the control circuit then compares the measured output voltage level with a reference voltage to determine how many of the switches in the array need be active to satisfy the power drawn by the load. The switches are switching transistors of a switched power supply. The object of the reference's disclosure is a step down converter producing a voltage Vout from an input battery voltage Vin. The transistors M1 ...M8 are connected in parallel with their sources and drains, and are used dependent on the power required. The control circuit sends control signals to one, two or more switches, and, accordingly, only the respective number of transistors is active (see Column 5, lines 42 to 45).

In reference Merrill, the transistors are switching transistors of a switched power supply and are switched continuous in the MHz range (see Column 8, line 13) and serve to produce the output voltage. Also, in Merrill, the current is controlled exclusively by the ON/OFF ratio of the transistors, independent of the number of transistors used. However, with the presently claimed invention, the semiconductor switches have a totally different function, and during normal use are always closed and are opened only in overload conditions.

It is respectfully submitted that the combination of Merrill with Duffy is not proper. Their teachings are different from each other, and their teachings are different from the presently claimed invention. There is no disclosure nor suggestion in either

reference for the combination set forth by the Examiner. Further, the presently claimed invention would not result from such combination; even further, Applicants believe that the combination proposed by the Examiner would not lead to any usable device. It is believed that the combination is prompted by impermissible hindsight after the Examiner has had the benefit of reading Applicants' disclosure, and amounts to improper selection of parts and bits without reason to do so found within the references.

The Examiner asserts, in Paragraph 7, subparagraph 3, that it is obvious to the skilled artisan "to provide a monitoring unit taught by Merrill to the power supply device of Duffy to disconnect any one of the semiconductor switches in order to regulate the flow of power to the load." However, in the presently claimed invention, the flow of power is not regulated, and in Merrill the circuit arrangement regulates the power flow, not by the number of transistors but by the duty cycle (ON/OFF ratio).

The Examiner asserts in subparagraph 5, that with respect to claim 4, the limitations are known, i.e., Ohm's Law; however, in claim 4, it is claimed that the maximal current (predefined short-circuit current) is limited nearly exclusively by the resistor and losses in the semiconductor switch occur in its saturation state only.

Claim 5 stands rejected under 35 USC §103(a) as being unpatentable over Duffy (US Patent No. 5,37,160) in view of Merrill (US Patent No. 5,969,514) as applied to claim 1 and further in view of Thomas (US Patent No. 5,805,393). References Duffy and Merrill have been hereinabove discussed. Reference Thomas discloses an overcurrent protection system to give a rapid response to overcurrents which cause a reduction in the voltage across the load. The system also maintains the trip endurance of the PTC device by using bypass FETs to remove the source voltage from the PTC, while still keeping the circuit protection arrangement in a fault state, thereby continuing to protect the load. It is believed that claim 5 depends from an allowable claim and is therefore also allowable.

CONCLUSION

In view of the foregoing, Applicant respectfully submits that claims 1, 2, and 4 to 7 are in condition for allowance. Applicant respectfully requests consideration and examination of this application and the timely allowance of the pending claims. If there are any other fees due in connection with the filing of this response, please do not hesitate to contact the undersigned.

Respectfully Submitted,

Jalal HALLAK et al.

June 27, 2006
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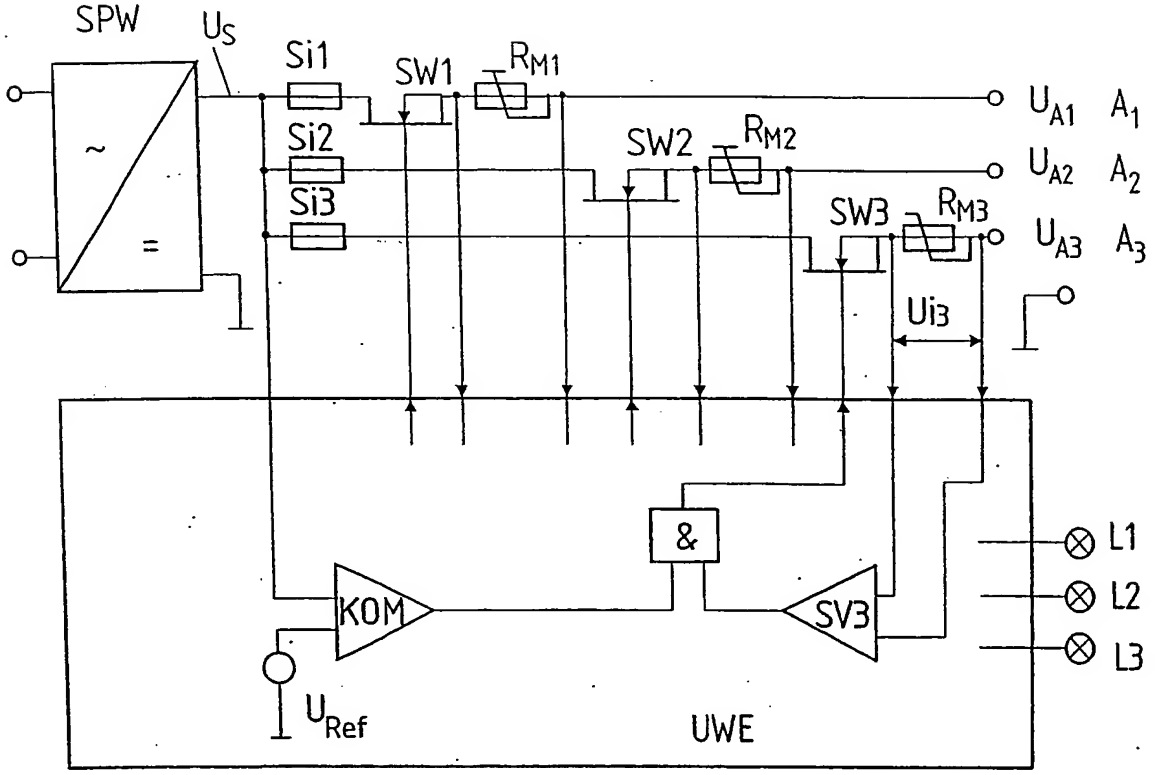

Fig: 1
(PRIOR ART)

ADDED

SWITCHED MODE VOLTAGE TRANSFORMER (SPW)
FEED VOLTAGE (U_S)
FUSE (Si1), (Si2), (Si3)
CONTROLLED SWITCH (SW1)
MEASURING SHUNT (R_M1)
OUTPUT VOLTAGE (U_{A1}), (U_{A2}), (U_{A3})
OUTPUT (A_1), (A_2), (A_3)
VOLTAGE (U_{i3})
COMPARATOR (KOM)
"AND" GATE (&)
SWITCHING AMPLIFIER (SV3)
MONITORING UNIT (UWE)
LIGHT (L_1), (L_2), (L_3)
REFERENCE VOLTAGE (U_{Ref})

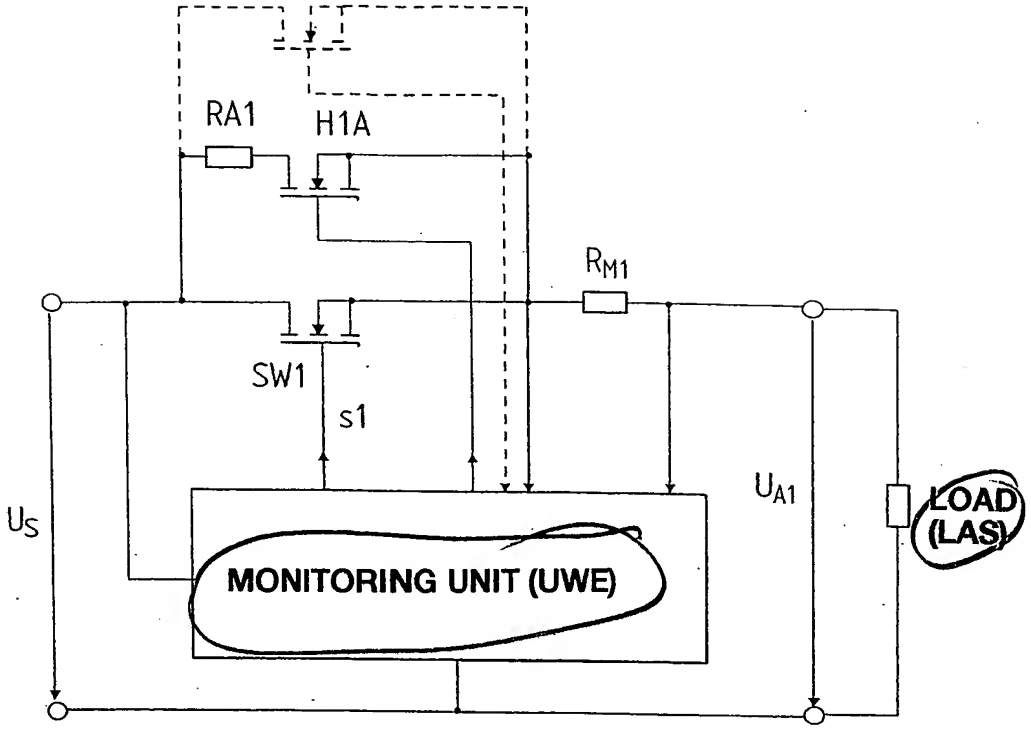

Fig. 2

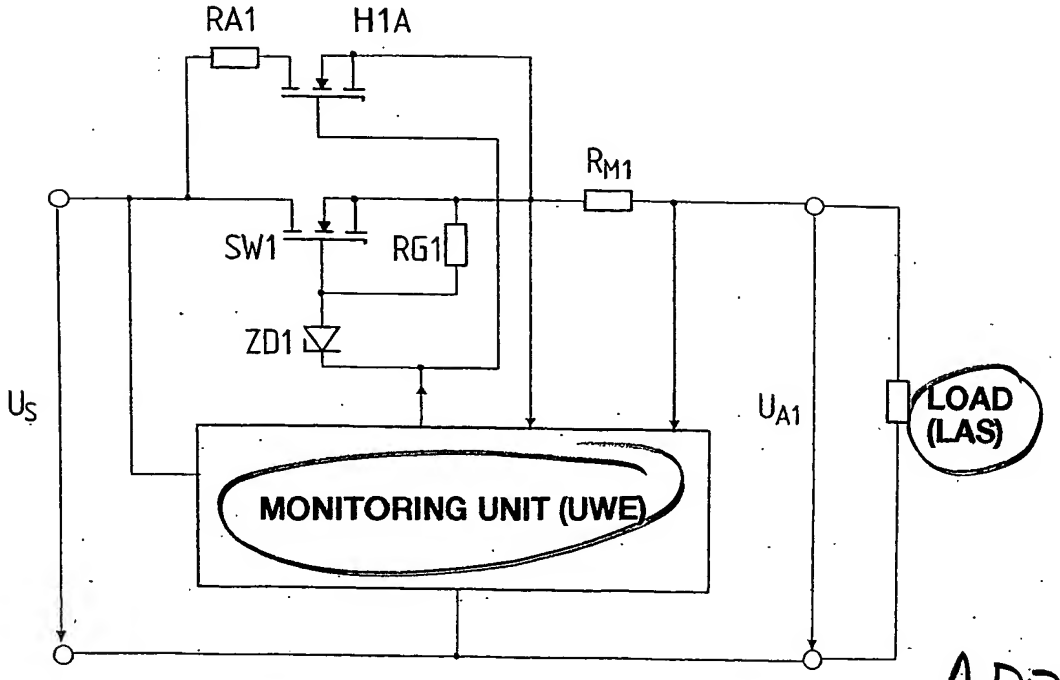

Fig. 3

ADDED

BALLAST RESISTOR (RA_1)
AUXILIARY SEMICONDUCTOR SWITCH (H1A)
RESISTOR (RM_1)
SEMICONDUCTOR SWITCH (SW_1)
DISCONNECT SIGNAL (S_1)
OUTPUT VOLTAGE (UA_1)
FEED VOLTAGE (U_S)
ZENER DIODE (ZD_1)
SERIES RESISTOR (RG_1)